

REMARKS

This Amendment is submitted in response to the outstanding Office Action, dated March 28, 2006. Claims 2, 3, 4, and 5 are proposed for amendment herein. Claims 9-15 are newly added. Claims 2-5 and 9-15 are presently pending in the above-identified application.

As the Examiner will appreciate, the Applicants were surprised by the new rejection made in the outstanding Office Action. Applicants had expected that the next paper issued by the Examiner in the normal course would have been a Notice of Allowance in view of the most recent file history and exchanges between the Examiner and Applicants.

That said, Applicants have considered the Examiner's recent rejection and trust the Examiner will find the currently pending claims allowable once again over the prior art of record as will be discussed hereinbelow.

Rejection of Claims 2-5 under 35 USC § 103(a)

The Office Action rejected claims 2-5 under 35 USC § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2003/0027613 (hereinafter the "Hasebe") in view of U.S. Patent No. 6,911,280 issued to De Jonghe et al. (hereinafter "De Jonghe") further in view of U.S. Patent Application No. 5,254,415 issued to Williams et al. (hereinafter "Williams"). Applicants have amended certain of the pending claims herein to more particularly claim the various aspects of the invention and Applicants have added new claims directed at further aspects of the invention. Applicants respectfully submit that the currently pending claims are patentable over the Hasebe, De Jonghe and Williams taken alone or in any combination for at least the following reasons.

More particularly, the various aspects of Applicants' claimed invention are directed to preventing the discharge of batteries while the batteries are not in use and for variably controlling when the discharge of the batteries was initiated. That is, the various aspects of the invention are directed to a method and apparatus wherein a battery

comprises an electrode having at least one nanostructured surface. The nanostructured surface, which plays a pivotal role in the variable control features of the present invention, is disposed in a way such that an electrolyte fluid of the battery is prevented from contacting the electrode, thus preventing discharge of the battery when the battery is not in use. When a voltage is passed over the nanostructured surface, the electrolyte fluid is caused to penetrate the nanostructured surface and to contact the electrode, thus activating the battery. Accordingly, when the activated battery is inserted into an electrical circuit, electrons will flow along the circuit. Applicants have amended the pending independent claims to more particularly claim the above-identified aspects of the invention.

In particular, the independent claims have been amended to include language directed to variably controlling a penetration of the electrolyte fluid into a nanostructured surface, where the nanostructured surface comprises a plurality of nanostructures, and each nanostructure has at least one dimension of less than one micrometer such that the penetration being variably controlled is a function of passing a voltage over the nanostructured surface such that prior to said passing of said voltage over said nanostructured surface the electrolyte fluid is suspended on the plurality of nanostructures thereby preventing contact of said electrolyte fluid with a first electrode. Further, upon passing of the voltage over said nanostructured surface the electrolyte fluid is caused to penetrate the nanostructured surface and come in contact with the first electrode thereby completing the variable control feature of the claimed invention.

Further, in one illustrative embodiment, the battery is an integrated part of an electronics package. In another embodiment, the battery is manufactured as a separate device and is then brought into contact with the electronics package.

Nothing in Hasebe, De Jonghe and Williams taken alone or in any combination teaches or suggests the various aspects of Applicants' invention as set forth in the amended claims herein. More particularly, Hasebe teaches a laser gun shooting system wherein the laser gun is connected to any unit without a wire, a shooting box, a target box, and a laser gun shooting system using the laser gun and shooting box (see, e.g., Hasebe, paragraph [0009]). The battery incorporated by Hasebe's system (see, e.g.,

Hasebe, paragraph [0017] and paragraph [0072] and FIG. 7) appears to be a standard power source. Hasebe does not teach or suggest preventing the discharge of batteries while the batteries are not in use and for variably controlling when the discharge of the batteries was initiated wherein the battery utilizes an electrode having at least one nanostructured surface pursuant to the various aspects of the invention and as set forth in the amended claims herein.

With regard to De Jonghe, that reference teaches a technique that facilitates the handling of metallic lithium, lithium alloy or other alkali metal or metal alloys in providing an adequate surface protective layer. For example, a composition comprising a lithium or other alkali or alkaline earth metal having a surface coated with a chemical protective layer, which protective layer is, at least transiently, physically and chemically stable in an ambient air environment and protects the lithium metal from further chemical reaction, where the protective layer is covalently bonded to the metal surface and which the protective layer conducts ions of the metal (see, e.g., De Jonghe, column 2, lines 20-58). As with Hasebe above, De Jonghe does not teach or suggest, alone or in combination with Hasebe, preventing the discharge of batteries while the batteries are not in use and for variably controlling when the discharge of the batteries was initiated wherein the battery utilizes an electrode having at least one nanostructured surface pursuant to the various aspects of the invention and as set forth in the amended claims herein.

Finally, Applicants understand Williams to teach a bipolar battery multi-cell stack which is thermally sprayed with lithium and FeS₂ resistant ceramic layer of a thickness sufficient to eliminate all through pores. Clearly, this vertically stacked array and fixed ceramic layers does not teach or suggest, alone or in combination with Hasebe/De Jonghe, preventing the discharge of batteries while the batteries are not in use and for variably controlling when the discharge of the batteries was initiated wherein the battery utilizes an electrode having at least one nanostructured surface pursuant to the various aspects of the invention and as set forth in the amended claims herein.

As mentioned above, Applicants amended claims herein are directed to aspects of the invention for preventing the discharge of batteries while the batteries are not in use

and for variably controlling when the discharge of the batteries was initiated. That is, the various aspects of the invention are directed to a method and apparatus wherein a battery comprises an electrode having at least one nanostructured surface. The nanostructured surface is disposed in a way such that an electrolyte fluid of the battery is prevented from contacting the electrode, thus preventing discharge of the battery when the battery is not in use. When a voltage is passed over the nanostructured surface, the electrolyte fluid is caused to penetrate the nanostructured surface and to contact the electrode, thus activating the battery. Accordingly, when the activated battery is inserted into an electrical circuit, electrons will flow along the circuit.

Additionally, newly added claims 9-15 are directed to further aspects of the invention with regard to the discharging of a battery and the variable control features of such discharging utilizing the claimed nanostructures. Support for such newly added claims may be found, at a minimum, in Applicants' Specification, page 4, line 23 through page 5, line 31; and page 6, line 1 through page 8, line 16.

In view of the foregoing, Applicants respectfully submit that each of the currently pending claims, as amended, are patentably distinct over Hasebe, De Jonghe and Williams, either taken alone or in any combination, therefore, Applicants respectfully submit that each of the currently pending claims in the application is in condition for allowance and reconsideration is requested. Favorable action is respectfully requested.

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Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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